WHAT IS CLAIMED IS:

1. A method for detecting a periodic binary signature in a binary signal, the method including steps of:

- providing the binary signal being a succession of binary symbols transmitted at a predetermined bit rate;
- providing the periodic binary signature being in the form of a pre-selected binary code having a code length of "C" binary symbols spread over the signal with a spacing of "D" bits both between the binary symbols of the signature, and between each two adjacent signatures;
- providing a state machine comprising a logical scheme interconnected with a memory block,
- providing the memory block of said state machine to comprise "D" independent memory cells each having its serial number, for cyclically connecting thereof to the logical scheme;
- ensuring that each of the memory cells, when in conjunction with the logical scheme, is capable of registering "K" successive binary states of the state machine including an initial state and a terminal state and comprising "C" successive binary states respectively associated with "C" binary symbols of the signature appearing in their predetermined order in said signature;
- assigning one and the same said initial binary state to all the cells in the memory block;
- applying said binary signal, at the predetermined bit rate, to the state machine,
- synchronously with said bit rate, switching the logical scheme of the state machine to said D memory cells in a cyclical order for processing

each bit within any group of D successive bits of the binary signal by a particular cell of the D memory cells; thereby associating each particular memory cell in the memory block with a respective bit in any group of D successive bits of the signal;

- continuously checking whether one or more of said "D" memory cells have registered the terminal state, and
- if in the affirmative, selecting from said one or more cells a single memory cell considered as detecting said signature.

2. The method according to Claim 1, for synchronizing the binary signal using the periodic binary signature, wherein said signal is a succession of equally sized multiframes, each of said multiframes comprises N binary frames having the frame length "F" bits, and wherein the periodic binary signature has a predetermined position in the multiframe.

3. The method according to Claim 1, wherein the checking operation is performed by continuously monitoring whether at least one cell of said "D" memory cells has registered the terminal state of said K binary states in a predetermined period of time, and if not, providing an additional time for applying the binary signal to the state machine to confirm that said terminal state is either registered or not registered in one or more of said memory cells.

4. The method according to Claim 1, wherein the selecting operation is performed as follows:

- considering one or more of said "D" memory cells which registered said terminal state as candidates for detecting said signature,

- if only one of said candidates is determined, considering said candidate the correct candidate and said signature detected, and
- if more than one of said candidates is determined, selecting the correct candidate by at least one action from the following non-exhaustive list comprising: applying a CRC procedure, continuing the operation of applying the binary signal to the state machine, repeating the method from the operation of assigning the initial state, up to receiving the correct candidate.

5. The method according to Claim 2, terminated by an operation of determining coordinates of the multiframe with respect to the detected signature, said operation being performed by associating the selected memory cell with timing of specific bits forming said signature in the signal.

6. The method according to any one of Claim 2, wherein said signal is a PDH multiframe signal comprising 24 frames (N=24), having a frame length 193 bit (F=193), and the periodic signature is a so-called Frame Alignment Signal ("S" is FAS), having six successive binary symbols (C=6) spread over the multiframe with the spacing equal to four frames (D=4F=772 bits).

7. The method according to Claim 6, wherein K=2.5C.

8. A device for detecting a periodic binary signature in a binary signal transmitted at a particular bit rate, said signature forming a pre-selected binary code having a code length of "C" binary symbols spread over the signal with a known spacing "D" of bits between the binary symbols of the signature as well as between adjacent signatures;

said device comprising:

- a state machine including a logical scheme interconnected with a memory block,
- said memory block of the state machine comprising "D" independent memory cells each having its serial number, the memory cells being cyclically connectable to the logical scheme;
- each of said memory cells, when in conjunction with the logical scheme, being capable of registering "K" successive binary states of the state machine including an initial state and a terminal state; said "K" states comprising "C" successive binary states respectively associated with "C" binary symbols of the code successively appearing in said signature;
- a control unit responsible for switching said logical scheme to said D memory cells according to their serial numbers and in a cyclical manner at a rate equal to the bit rate of said signal so that, a different memory cell is connected to the logic scheme at each of the time clocks within a group of D time clocks, said control unit being further capable of continuously checking whether at least one cell of said "D" memory cells has registered the terminal state, and of selecting therefrom a single one considered as detecting said signature;

the arrangement being such that, if one and the same said initial binary state is assigned to all the cells in the memory block, and if said binary signal is applied to the state machine at its bit rate, each bit in any group of D successive bits of the binary signal will be processed using a particular cell of the D memory cells, thereby associating each of the memory cells with a particular bit in any group of D successive bits and allowing said periodic signature formed by a particular bit within said D

successive bits to be detected by the respective particular memory cell of said D cells.

9. The device according to Claim 8, adapted for synchronizing the signal, wherein said signal is a succession of equally sized multiframes, each of said multiframes comprises N binary frames of a frame length "F" bits, each of the frames containing one said periodic binary signature at a predetermined position in the multiframe.

10. The device according to Claim 8, wherein the control unit is operative in detecting the terminal state whenever registered in one or more of the D memory cells in a predetermined period of time; the control unit being also capable of selecting a single memory cell from those which have detected said signature, by applying a CRC procedure, and adapted to initiate a new session of detecting the signature if said single memory cell has not been found.

11. The device according to Claim 8, wherein said control unit is further provided with synchronizing means capable of determining coordinates of the multiframe with respect to the detected signature, using identification of the selected memory cell.

12. The device according to Claim 9, specifically adapted to detect the periodic signature signal in the PDH multiframe binary signal comprising 24 frames (N=24), having a frame length 193 bit (F=193), wherein the periodic signature is a Frame Alignment Signal (FAS), having six successive binary symbols (C=6) spread over the multiframe with the spacing equal to four frames (D=4F=772 bits).